

**EXHIBIT C**

**Product Information****Typical Performance Properties\*****Surlyn® 8320**

thermoplastic resin

**General Description**

*Surlyn®* 8320 thermoplastic resin is an advanced ethylene/methacrylic acid (E/MAA) copolymer, in which the MAA acid groups have been partially neutralized with sodium ions. This very-low-modulus sodium grade has low hardness and very low stiffness. Increased flexibility is achieved by incorporating a third co-monomer into the resin during polymerization. It is used alone or in combination with other resins or polymers as a way to tailor flexibility for specific applications. In golf ball covers, for example, it provides a softer feel and imparts greater spin when the ball is in contact with the club face. *Surlyn®* 8320 normally is processed in a polymer blend by injection molding. Typical performance properties are shown below:

Basic Properties	Temp (°C) °F	UNIT	ASTM	ISO	Value
Cation type (Li, Na or Zn)					Na
Melt Flow Index <sup>(1)</sup>	(190) 374	g/10 min	D-1238	R242	1
Specific Gravity		g/cm <sup>3</sup>	D-792	R1183	0.95

<sup>(1)</sup> ASTM test D-1238, condition E (weight = 2160 g)

Mechanical Properties	Temp (°C) °F	UNIT	ASTM	ISO	Value
Tensile Impact	(23) 73	10 <sup>2</sup> kJ/m <sup>2</sup>	D-1822S		4.5
		ft lb/in <sup>2</sup>			-
	(-40) -40	10 <sup>2</sup> kJ/m <sup>2</sup>			-
		ft lb/in <sup>2</sup>			-
Notched Izod	(23) 73	Jm	D-256		NB
		ft lb/in.			NB
Brittleness Temperature		°C	D-74L		-

Tensile Strength <sup>(2)</sup> Yield	(23) 73	MPa	D-638	R527	3.1
		kpsi			0.45
Break	(23) 73	MPa		R527	18.6
		kpsi			2.7
Elongation Break	(23) 73	%	D638	R527	555
Tear Strength Die C	(23) 73	kN/cm	D624		
		lb/in.			
Flex Modulus	(23) 73	MPa	D-790	178	30.3
		kpsi			4.4
	(-20) -4	MPa			-
		kpsi			-
Ross Flex, Pierced <sup>(3)</sup>	(23) 73	Cycles to failure	D-1052		-
	(-29) -20				-
MIT Flex (0.65 mm thick)	(23) 73	Cycles	DuPont		-
Hardness Shore D	(23) 73		D-2240	R868	36
Abrasion Resistance	(23) 73	NBS index	D-1630		61

(2) Type IV bars, compression molded, cross speed 5.0 cm/min (2 in./min)

(3) Compression molded samples 3.2 mm (0.125 in.) thick, pierced 2.5 mm (0.1 in.) wide

Optical Properties	Temp (°C) °F	UNIT	ASTM	ISO	Value
Gloss 20°			D-523-6		-
Haze 0.250 in. (6.4 mm) thick <sup>(1)</sup>		%	D-1003A		-

Thermal Properties	Temp (°C) °F	UNIT	ASTM	ISO	Value
HDT (0.46 MPa) 66 psi		(°C) °F	D-648		-
Vicat point (Rate B) <sup>(1)</sup>		(°C) °F	D-1525-70	306	(47)117
Melting point <sup>(4A)</sup>		(°C) °F	DSC		(70)158
Melting point <sup>(4)</sup>		(°C) °F	DTA		-
Freezing point <sup>(4A)</sup>		(°C) °F	DSC		(38)100
Freezing point <sup>(4)</sup>		(°C) °F	DTA		-
Coef. Thermal Expansion	(-20 to 32)	µm/m°C	D-696		-
		10 <sup>-5</sup> cm/cm°c			-

(4) Value determined by differential thermal analysis (DTA)

(4A) Value determined by differential scanning calorimetry (DSC)

Flammability	UNIT	ASTM	ISO	Value
	mm/min	D-635		-
	in/min			-
Flammability (Motor Vehicle)	pass/fail	ST302		-
Thermal Conductivity	W/m.K			-
	$10^{-4}$ cal-cm/cm <sup>2</sup> •S° <sup>o</sup> C			-

\*NOTE: Test values will vary depending on sample conditioning and environment. Physical properties reported herein are intended primarily to enable comparisons of DuPont *Surlyn*® resins. It should be recognized that even ASTM testing methods allow alternative methods for developing a given property. Alternative methods may not yield comparable data. Unless test methods are fully defined, it may be misleading to compare values reported on various suppliers' data sheets.

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## Product Information

Typical Performance Properties\*



# Surlyn® 7930

thermoplastic resin

### General Description

*Surlyn®* 7930 thermoplastic resin is an advanced ethylene/methacrylic acid (E/MAA) copolymer, in which the MAA acid groups have been partially neutralized with lithium ions. The amount of MAA and neutralization levels for this grade are optimized to deliver low-temperature toughness, excellent clarity, and extra stiffness compared with other grades of *Surlyn®*. The resin can be injection or blow molded, and is processable by extrusion into sheets or shapes. Typical performance properties are shown below:

Basic Properties	Temp (°C) °F	UNIT	ASTM	ISO	Value
Cation type (Li, Na or Zn)					Li
Melt Flow Index <sup>(1)</sup>	(190) 374	g/10 min	D-1238	R242	1.8
Specific Gravity		g/cm <sup>3</sup>	D-792	R1183	0.94

<sup>(1)</sup> ASTM test D-1238, condition E (weight = 2160 g)

Mechanical Properties	Temp (°C) °F	UNIT	ASTM	ISO	Value
Tensile Impact	(23) 73	10 <sup>2</sup> kJ/m <sup>2</sup>	D-1822S		3.4
		ft lb/in <sup>2</sup>			160
	(-40) -40	10 <sup>2</sup> kJ/m <sup>2</sup>			3
		ft lb/in <sup>2</sup>			140
Notched Izod	(23) 73	Jm	D-256		NB
		ft lb/in.			NB
Brittleness Temperature		°C	D-74L		-
Tensile Strength <sup>(2)</sup> Yield	(23) 73	MPa	D-638	R527	19.3
		kpsi			2.8

Break	(23) 73	MPa		R527	26.2
		kpsi			3.8
Elongation Break	(23) 73	%	D638	R527	290
Tear Strength Die C	(23) 73	kN/cm	D624		-
		lb/in.			-
Flex Modulus	(23) 73	MPa	D-790	178	462
		kpsi			67
	(-20) -4	MPa			-
		kpsi			-
Ross Flex, Pierced <sup>(3)</sup>	(23) 73	Cycles to failure	D-1052		<100
	(-29) -20				<100
MIT Flex (0.65 mm thick)	(23) 73	Cycles	DuPont		-
Hardness Shore D	(23) 73		D-2240	R868	68
Abrasion Resistance	(23) 73	NBS index	D-1630		-

<sup>(2)</sup> Type IV bars, compression molded, cross speed 5.0 cm/min (2 in./min)

<sup>(3)</sup> Compression molded samples 3.2 mm (0.125 in.) thick, pierced 2.5 mm (0.1 in.) wide

Optical Properties	Temp (°C) °F	UNIT	ASTM	ISO	Value
Gloss 20°			D-523-6		-
Haze 0.250 in. (6.4 mm) thick <sup>(1)</sup>		%	D-1003A		9

Thermal Properties	Temp (°C) °F	UNIT	ASTM	ISO	Value
HDT (0.46 MPa) 66 psi	(°C) °F		D-648		(46)115
Vicat point (Rate B) <sup>(1)</sup>	(°C) °F	D-1525-70	306		(62)144
Melting point <sup>(4A)</sup>	(°C) °F	DSC			(89)192
Melting point <sup>(4)</sup>	(°C) °F	DTA			-
Freezing point <sup>(4A)</sup>	(°C) °F	DSC			(46)115
Freezing point <sup>(4)</sup>	(°C) °F	DTA			-
Coef. Thermal Expansion	(-20 to 32)	µm/m°C	D-696		-
		10 <sup>-5</sup> cm/cm°c			-

<sup>(4)</sup> Value determined by differential thermal analysis (DTA)

<sup>(4A)</sup> Value determined by differential scanning calorimetry (DSC)

Flammability	UNIT	ASTM	ISO	Value
	mm/min	D-635		-
	in/min			-
Flammability (Motor Vehicle)	pass/fail	ST302		-
Thermal Conductivity	W/m.K			-
	$10^{-4}$ cal·cm/cm <sup>2</sup> ·S·°C			-

\*NOTE: Test values will vary depending on sample conditioning and environment. Physical properties reported herein are intended primarily to enable comparisons of DuPont Surlyn® resins. It should be recognized that even ASTM testing methods allow alternative methods for developing a given property. Alternative methods may not yield comparable data. Unless test methods are fully defined, it may be misleading to compare values reported on various suppliers' data sheets.

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**Product Information**

Typical Performance Properties\*

**Surlyn® 8140**

thermoplastic resin

**General Description**

*Surlyn®* 8140 thermoplastic resin is an advanced ethylene/methacrylic acid (E/MAA) copolymer, in which the MAA acid groups have been partially neutralized with sodium ions. The amount of MAA and neutralization levels for this grade are optimized to deliver higher hardness and stiffness compared with other sodium ionomer grades of *Surlyn®*. The resin is ideal where high stiffness, high clarity and good abrasion resistance are desired. In golf ball covers, the resin provides good cut resistance, impact durability, high resilience and increased coefficient of restitution, particularly when used in blends with other cations. The resin is normally injection molded. Typical performance properties are shown below:

Basic Properties	Temp (°C) °F	UNIT	ASTM	ISO	Value
Cation type (Li, Na or Zn)					Na
Melt Flow Index <sup>(1)</sup>	(190) 374	g/10 min	D-1238	R242	2.6
Specific Gravity		g/cm <sup>3</sup>	D-792	R1183	0.96

<sup>(1)</sup> ASTM test D-1238, condition E (weight = 2160 g)

Mechanical Properties	Temp (°C) °F	UNIT	ASTM	ISO	Value
Tensile Impact	(23) 73	10 <sup>2</sup> kJ/m <sup>2</sup>	D-1822S		-
		ft lb/in <sup>2</sup>			-
	(-40) -40	10 <sup>2</sup> kJ/m <sup>2</sup>			-
		ft lb/in <sup>2</sup>			-
Notched Izod	(23) 73	Jm	D-256		-
		ft lb/in.			-
Brittleness Temperature		°C	D-74L		-
Tensile Strength <sup>(2)</sup> Yield	(23) 73	MPa	D-638	R527	-

		kpsi			2.9
Break	(23) 73	MPa	R527	5.3	
		kpsi			
Elongation Break	(23) 73	%	D638	R527	325
Tear Strength Die C	(23) 73	kN/cm	D624		
		lb/in.			
Flex Modulus	(23) 73	MPa	D-790	178	517
		kpsi			75
	(-20) -4	MPa			-
		kpsi			-
Ross Flex, Pierced <sup>(3)</sup>	(23) 73	Cycles to failure	D-1052		-
	(-29) -20				-
MIT Flex (0.65 mm thick)	(23) 73	Cycles	DuPont		-
Hardness Shore D	(23) 73		D-2240	R868	65
Abrasion Resistance	(23) 73	NBS index	D-1630		426

<sup>(2)</sup> Type IV bars, compression molded, cross speed 5.0 cm/min (2 in./min)

<sup>(3)</sup> Compression molded samples 3.2 mm (0.125 in.) thick, pierced 2.5 mm (0.1 in.) wide

Optical Properties	Temp (°C) °F	UNIT	ASTM	ISO	Value
Gloss 20°			D-523-6		-
Haze 0.250 in. (6.4 mm) thick <sup>(1)</sup>		%	D-1003A		-

Thermal Properties	Temp (°C) °F	UNIT	ASTM	ISO	Value
HDT (0.46 MPa) 66 psi		(°C) °F	D-648		-
Vicat point (Rate B) <sup>(1)</sup>		(°C) °F	D-1525-70	306	(58)136
Melting point <sup>(4A)</sup>		(°C) °F	DSC		(87)189
Melting point <sup>(4)</sup>		(°C) °F	DTA		-
Freezing point <sup>(4A)</sup>		(°C) °F	DSC		(45)113
Freezing point <sup>(4)</sup>		(°C) °F	DTA		-
Coef. Thermal Expansion	(-20 to 32)	µm/m°C	D-696		-
		10 <sup>-5</sup> cm/cm°c			-

<sup>(4)</sup> Value determined by differential thermal analysis (DTA)

<sup>(4A)</sup> Value determined by differential scanning calorimetry (DSC)

Flammability	UNIT	ASTM	ISO	Value
	mm/min	D-635	-	-
	in/min			-
Flammability (Motor Vehicle)	pass/fail	ST302	-	-
Thermal Conductivity	W/m.K			-
	$10^{-4}$ cal·cm/cm <sup>2</sup> ·S·°C			-

\*NOTE: Test values will vary depending on sample conditioning and environment. Physical properties reported herein are intended primarily to enable comparisons of DuPont Surlyn® resins. It should be recognized that even ASTM testing methods allow alternative methods for developing a given property. Alternative methods may not yield comparable data. Unless test methods are fully defined, it may be misleading to compare values reported on various suppliers' data sheets.

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